



SOUND SOLUTIONS FROM LIGHT TECHNOLOGY

FOMRI-III™

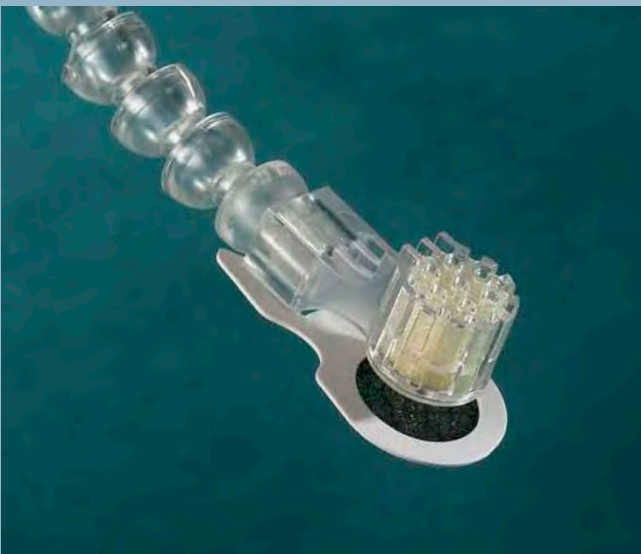
Fiber Optic Microphone
for Functional MRI

Now Hear This.



The Wisdom of Light
In A World of Noise

Clear Speech, TTL Synchronized,
Advanced DSP Noise Reduction



FOMRI-III™

Fiber Optic Microphone
for Functional MRI

You haven't heard this before.

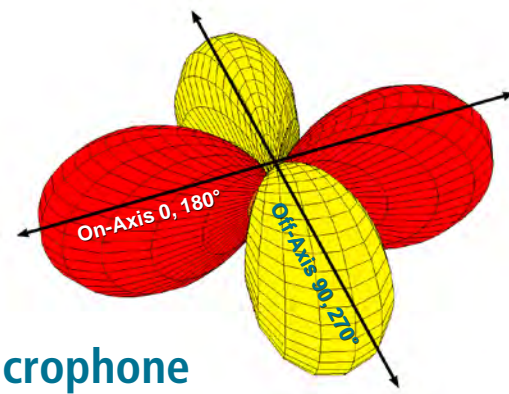
With FOMRI-III, our popular fMRI microphone platform now delivers the industry's highest real-time speech quality, together with a new standard for simplicity of installation and operation.

FOMRI-III Benefits:

- ▶ Crisp, clear speech in real time
- ▶ Built-in console loudspeaker
- ▶ Selectable, automatic noise reduction
- ▶ Synchronized TTL signals
- ▶ Speech output broadcast mode
- ▶ Plug-and-play operation
- ▶ Easy microphone mounting on your RF coil
- ▶ Completely safe, EMI/RFI immune system

No other microphone can provide the excellent performance, range of features, reliability and ease of use as Optoacoustics' FOMRI-III.

FOMRI-III is the ultimate solution for capturing speech during EPI.



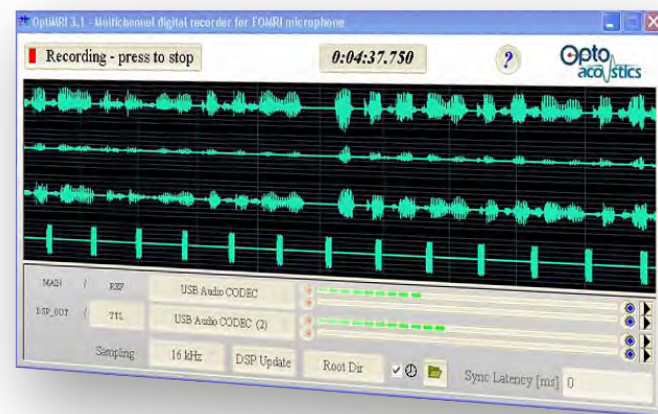
Advanced Optical Microphone

The FOMRI-III is the most advanced adaptive noise cancelling microphone available today for use in MRI environments.

We achieve this with two complementary techniques:

- ▶ Using pressure gradient optical microphones with inherent low self noise, wide bandwidth, a high dynamic range and a high directivity index
- ▶ Using two separate phase and amplitude matched microphones, arranged orthogonally, to capture input sound at the precisely the same location

Our FOMRI microphone is field-proven in hundreds of MR settings, where the most robust, integrated noise cancelling is demanded.



OptiMRI Integrated Software

FOMRI-III bundled software features dual channel noise reduction algorithms that are optimized for the acoustic characteristics of MRI, including resonance frequencies, dynamic range and varying duty-cycle time events.

OptiMRI enables concurrent synchronized recording of dual channel microphone outputs, filtered speech processed by the DSP and up to three TTL signals. A complete set of output post-processing capabilities is provided also.

Hear precisely what is said inside the bore, and synchronize speech to TTL signals in real time.



Plug-and-Play Control Console

The FOMRI-III console allows simple, intuitive control of the system, and enables instant plug-and-play operation – just connect the power and microphone cables and start working.

The FOMRI-III uses an advanced DSP to perform advanced, low-latency noise reduction.

Along with a robust loudspeaker and four-position noise reduction selector, the console features:

- ▶ Analog and digital connections for output recording to a PC or USB storage device
- ▶ BNC input connections for synchronizing speech with up to three TTL signals in real time

With FOMRI-III, you can monitor filtered speech instantly, while simultaneously recording to a PC, flash disk or an IP network connection.

Easy Mounting

The FOMRI-III microphone can be mounted securely on any sized head coil, using our instant strap-on gooseneck boom. Completely safe, this ultra-flexible mount enables extremely close voice proximity and can be quickly adjusted to any configuration.

System Accessories

FOMRI-III system accessories include:

- ▶ Fiber optic cable extensions from 10 to 50 meters
- ▶ Fitted hygienic disposable pop-screens (100 pack)



FOMRI-III™ TECHNICAL SPECIFICATIONS

Optical Microphone

Configuration Type	Dual channel, perpendicular
Frequency Response	50-20,000 Hz
Max. Sound Pressure Level (SPL)	130 dB SPL
Total Harmonic Distortion	<1% at 94 dB SPL
Operating Temperature	0 to +60 °C (32 to +140 °F)

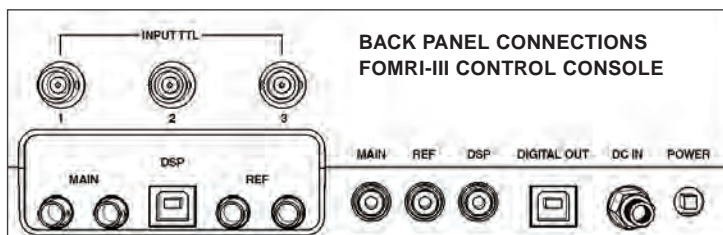
Microphone Subcomponents

Microphone Housing	Polycarbonate
Head Dimensions	60/20/25 mm [L/W/H]
Head Weight	160 g
Mounting Attachment Box	Polycarbonate
Box Dimensions	60/60/25 mm [L/W/H]
Mounting Mechanism	Velcro® Strips
3D Adjustable Boom	Polypropylene
Boom Dimensions	300/16 mm [L/D]
Optical Fiber Cable (MIL STD)	
Coating Material	Polyester Elastomer
Cable Dimensions	15 m [L], 5 mm [D]
Connector	4 x ST
Pop Screen (Disposable)	Polycarbonate, Polyester

Software/DSP

Sampling Frequency	
OptiMRI 3.1 and DSP	8,000/16,000 Hz, 16 Bit
OptiMRI 2.4	8,000 Hz, 16 Bit
Latency	
OptiMRI 3.1 and DSP	16/24/32 msec (selectable)
OptiMRI 2.4	96 msec

Control Console



Dimensions	105/165/220 mm [H/D/W]
Weight	1.2 Kg
Power	12-15 V DC
Current Drain	300 mA (nom) 700 mA (max)
Input Connectors	
Optical	4 x ST (Main, Reference)
Power	3.5 mm
TTL	3 x BNC
DSP (for algorithm updates)	1 x USB
Output Connectors	
Analog (Main, Ref, DSP)	3 x RCA (100 mV/Pa)
Digital (Main/Ref, DSP/TTL)	2 x USB
Loudspeaker (Internal)	
Frequency Response	100-10,000 Hz
Gain Knob Range	Up to +45 dB
Noise Reduction	Off/Low/Med/High (15-40 dB)



Optoacoustics is a leading manufacturer of high performance, optical fiber-based sound and vibration sensors. Each of our products combines the natural intelligence of optics and acoustics to meet technical performance demands which cannot be addressed by conventional sensing solutions. Optoacoustics' pioneering technology is protected by over 20 international patents.

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